

# Improved toothbrush

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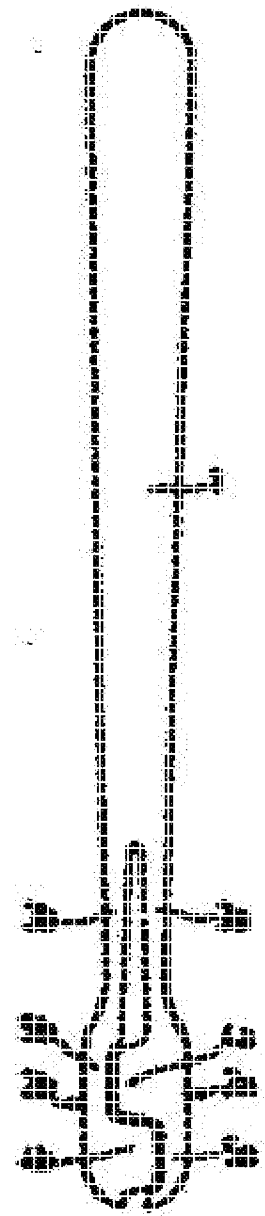
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Abstract of **FR 2548528 (A1)**

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Toothbrush with two heads placed side by side. Each head 2a, 2b is connected to the handle 1 by a longitudinal branch 3a, 3b which is elastic in flexion and has a projecting part 4a, 4b penetrating in a hollowed part 5b, 5a of the other head 2b, 2a.



Sophisticated toothbrush.

The present invention refers to a toothbrush comprising, at the end of a handle, two heads placed coast at coast, in which bristles or strands are established so that the bristles or strands of the two heads converging.

The purpose of a known toothbrush of this type on which the two heads are spaced one of the other and are connected rigidly to the handle, is to allow a simultaneous brushing of the inner face and outer face of the teeth.

The disadvantages of this known brush are multiple. Apart from the obstruction relatively substantial that the two spaced heads imply, it should be noted that this known brush does not allow, on the premolars and molar, a brushing that on the sides and not on the top. In addition, the establishment and the long one of the bristles or strands are selected according to one thickness determined of the teeth, whereas this thickness varies considerably between the incisors and the molar ones. Consequently, if the bristles or strands were established in the sight of an optimum brushing of the incisors, these bristles will be crushed with the brushing of the molar ones. On the contrary, if the bristles were established in the sight of an optimum brushing of the molar ones, the effect of brushing on the incisors will be at the very least highly reduced.

The present invention has as an object a toothbrush of the type with two heads placed coast at coast, less cumbersome than the known brush, ensuring a brushing on the faces inner and outer and the top of the teeth and getting an effect of optimum brushing as well on the incisors on the molar ones.

your toothbrush following the invention includes/understands, at the end of a handle, two heads placed coast at coast in which bristles or strands are established so that the bristles or strands of the two heads converging.

Each head is connected to the handle by an elastic longitudinal branch in inflection in a plane substantially perpendicular to the direction of implantation of the bristles or strands. Each present head at least a part making covered way substantially perpendicular to the direction of establishment of the bristles or bristles in direction of the other head, and penetrating, with the state not bent of the branches, in at least a part into hollow of the other head, ayan a complementary form of the aforesaid the projecting portion. The bristles or strands are also established in the aforementioned projecting portions.

Thanks to the flexibility of the branches connecting the two heads to the handle and thanks to the conformation of the heads so that the two heads interpenetrate partly, the brush in conformity with the invention ensures a brushing of the faces inner and outer of all the teeth, as well of the incisors as of molar, substantially with the same effectiveness, as well as a brushing of the top of

the teeth. Indeed, the elastic branches in inflection make it possible the two heads to deviate one from the other according to the thickness of the teeth, i.e. to adapt to the teeth of different thickness by always preserving the same effectiveness of brushing of the faces inner and outer of the teeth, and the bristles or strands established in projecting portions of the two heads make that same in the event of maximum spacing of the two heads, there remains always of the bristles or strands laid out so as to brush the top of the teeth effectively.

To improve the effect of brushing of the top of the teeth, the bristles or strands established in the projecting portions of the heads advantageously present an intermediate orientation between that of the bristles or converging strands of the remaining portions of the two heads.

Always in the purpose improving and standardizing the effect of brushing of the teeth, it is beneficial that the bristles or strands established in the projecting patties of the heads are more short than the bristles or strands established in the remaining portions of the teeth.

This effect of brushing can still be made more uniform by the fact that the length of the bristles or strands decrease progressively since the edge of each head far away from the other head, in direction of the opposite edge.

To allow an optimum penetration of the bristles or strands in the gengivo-dental furrow, the converging bristles or strands make an angle ranging between 20 and 60°, preferably between 40 and 50° with the others.

While referring to the annexed drawing, one will describe hereafter more in detail an embodiment illustrative and nonrestrictive of the invention; on the drawing

- . 1 is a view of top of a toothbrush in conformity with the invention;
- . 2 is a view in end of this same brush;
- . 3 is a view of disassembled of the brush of. 1, both head being to spaced apart one of the other;
- . 4 is a view in end of the brush in the position according to. 3;
- . 5 is a side view of the brush in conformity with the invention.

your toothbrush as illustrated by the drawing includes/understands a handle comprising at an end two heads 2a, 2b placed coast at coast. Each one of two heads 2a, 2b is connected to handle 1 by a longitudinal branch 3a, separated. Each present branch 3a, 3b a substantially bottom rectangular cross-section with that of the common part of handle 1. The two branches 3a, 3b

which are, so elastic in inflection present because of their rectangular section, of the stiffness in inflection different following two perpendicular directions.

The head 2a is formed of a broad 4a part, connected to the branch 3a and of a thin 5a part prolonging the 4a part in the direction longitudinale of the brush, the head 2b is, on its side, formed of a thin 5b part connected to the branch 3b and of a broad 4b part prolonging the 5b part in the longitudinal direction of the brush. The wide portions 4a and 4b of the heads 2a and 2b present an upper width at the half of the total width of the two heads 2a, 2b. The wide portions 4a, 4b make covered transversely with the longitudinal axis on the heads 2a, 2b, so as to penetrate in the hollow ones which the heads 2b present, 2a at the place of the 5b parts, 5a gotten thinner. In other words, the two heads 2a, 2b present on their sides in glance, of the complementary forms allowing the two heads 2a, 2b to interpenetrate.

The bristles or strands are established in several longitudinal rows in the two heads 2a and 2b. One recognizes on the head 2a two outer rows of bristles or strands 6a, 7a parallel and on the head 2b, of the same manner, two outer rows of bristles strands 6b, 7b parallel, the bristles or strands of the two heads being converging

The two heads 2a and 2b comprise moreover several inner rows of bristles or strands 8a, 8b parallel. The bristles 8a, 8b of the inner rows are established in the parts of the heads 2a, 2b which make covered towards the head opposed compared to the thin portions 5a, 5b. These rows of bristles 8a 8b thus extend only over the length from the wide portions 4a, 4b of the heads 2a, 2b.

The bristles or strands 8a, 8b are established following an intermediate orientation of that of the bristles or converging strands 6a, 7a and 6b, 7b of the outer rows.

The bristles or strands 8a, 8b of the inner rows are more short than the bristles 6a, 7a and 6b, 7b of the outer rows. The bristles 6a, 6b established on the outer edge of the heads 2a, 2b are in addition longer than the bristles 7a, 7b of the following row. One recognizes thus that the length of the bristles or strands decreases progressively since the outer edge of each head towards the inner one.

Grace at the converging establishment of the bristles or strands 6a, 7a and 6b, 7b of the outer rows of the two heads 2a and 2b, these bristles get an effective brushing of the faces inner and

outer of the incisors and other nonthick teeth, the two heads 2a and 2b occupant, in this case, the visible position brought closer on. 1 and 2.

At the time of the brushing of thicker teeth, especially of molar, the bristles or strands converging 6a, 7a and 6b, 7b of the outer rows of the heads 2a and 2b cause a distance of the two heads 2a and 2b one of the other, by elastic inflection of the branches 3a, 3b perpendicularly with the orientation of these bristles or strands, of the visible den on. 3 and 4. the bristles or strands 6a, 7a, 6b, 7b of the outer rows ensure the brushing of the faces thus inner and outer of the teeth, while the bristles 8a, 3b of the inner rows of the two heads ensure the brushing of the top of the teeth.

This brushing of any Ia surface of top of the teeth, whatever the width of the teeth, is ensured thanks to the particular shape of the heads 2a, 2b which interpenetrate one the other so that same in position of maximum spacing of the heads, one lays out always, like the watch. 4, of bristles on whole width of the dual head.

On. 4, one recognizes the bristles 8a of only one of the three inner rows of bristles or strands established on the wide portion 4a of the head 2a.

The bristles 8a of the two other inner rows of the head 2a are hidden by the bristles 8b inner rows of the head 2b.

Taking into account the relatively low length of the bristles or strands 8a, 8b of the inner rows of the two heads 2a, 2b, it is beneficial like the watch. 5, that handle 1 is highly off-set compared to the dual head 2a, 2b.

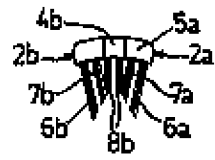
Of course, of numerous changes and variants can be brought, in the frame of the present invention, with the toothbrush as described above and illustrated by the annexed drawing.

Thus, the two heads 2a and 2b could also have, on the side or they interpenetrate, the different shape in festoons of that repriser tee, for example with festoons rounded (sinusoidal) rather than with trapezoidal festoons. The number of the outer and inner rows of bristles or strands could be selected different, provided that an uniform brushing of all the faces of the teeth is assured whatever the thick teeth. Each head could also comprise two wide portions and two thin portions, or an head omporter two wide portions and a thin portion and the other head a wide portion and two thin portions.

## CLAIMS

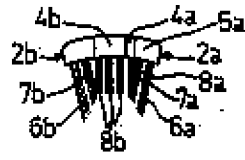
1. Toothbrush comprising, at the end of a branch, two heads placed dimension at side in which bristles or strands are established so that the bristles or strands of the two heads converging, characterized by the fact that each head (2a, 2b) is connected to the handle (1) in a longitudinal branch (3a, 3b) elastic in inflection in a plane substantially perpendicular to the direction of establishment of the bristles or strands (6a, 7a, 6b, 7b), that each head (2a, 2b) present at least a part (4a, 4b) making covered way substantially perpendicular to the direction of establishment of the bristles in direction other head and penetrating, with the state not bent of the branches (3a, 3b), in at least a part into hollow (5a, 5b) of the other head, and that bristles or strands (8a, 8b) are also established in the aforementioned projecting portions (4a, 4b).
2. Toothbrush following claim 1, characterized by the fact that the bristles or strands (8a, 8b) are established in the aforementioned projecting portions (4a, 4b) following an intermediate orientation between that of the bristles or converging strands (6a, 7a, 6b, 7b).
3. Toothbrush following the claim 1 or 2, characterized by the fact that the bristles or strands (8a, 8b) established in the projecting portions (4a, 4b) are more short than the bristles or strands (6a, 7a, 6b, 7b) established in the remaining portions of the heads.
4. Toothbrush following any of the preceding claims, characterized by the fact that the length of the bristles or strands (6a, 7a, 8a, 6b, 7b, 8b) decreases progressively since the edge of each head far away from the other head, in direction of the opposite edge.
5. Toothbrush following any of the preceding claims, characterized by the fact that the converging bristles or strands (6a, 7a, 6b, 7b) make an angle ranging between 20 and 600, preferably an angle ranging between 40 and 500 ones with the others.

**FIG.2**

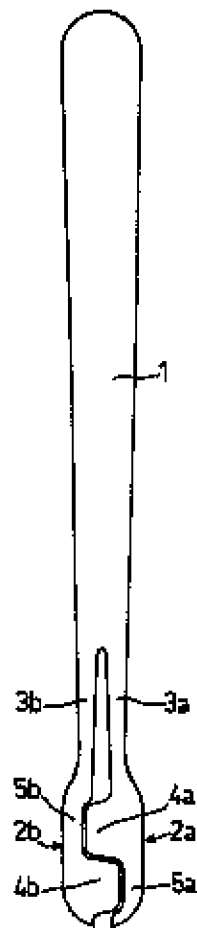


**FIG.4**

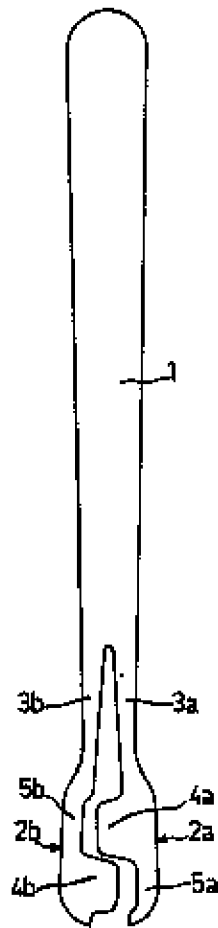
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**FIG.1**



**FIG.3**



**FIG.5**

